National Aeronautics and Space Administration
NASA Marshall Star : May 26, 2005 : Vol. 45/No. 35

MARSHALL STAR

Serving the Marshall Space Flight Center Community **May 26, 2005**

New Marshall facility increases impact testing capabilities

By Jack Robertson

Marshall Center physicists, engineers and representatives from Department of Defense agencies have worked together to bring a unique facility to the Marshall Center, adding test capabilities for development of future launch vehicles.

The Hydrometeroid Impact Facility will help expand testing of thermal protection systems, space power systems and space habitats, important components in NASA's long-term spaceflight goals. It will also be available for specialized military, business and industry testing. A new structure for the equipment will be built in the Marshall test area and the facility will become operational Oct. 1, 2005.

"This is unique, and its continued operation will benefit everyone," said Marshall Center Director David King. "The partnerships which brought this facility to Marshall are another great example of how this community works together to advance our common goals for space flight. We are delighted the equipment is here and we are eager to begin testing."

Marshall officials, representatives from the U.S. Army, U.S. Navy, business and industry attended kickoff ceremonies May 12 to mark the successful collaboration. They gathered in the exhibit gallery of Marshall's Propulsion Research Laboratory, Building 4205, and toured the current high impact test facility in Building 4612.

The Marshall Center has been involved in design testing and evaluation of orbital debris shields for various spacecraft since the early 1960s. The new facility will become the main testing component in the Marshall Center's Impact Testing Facility, joining an existing hypervelocity light gas and air gun to provide a variety of single- and multiple-particle impacts across a wide range of velocities. The added equipment includes a hydrometeor impact gun, single/multi-particle impact gun, exploding wire gun, small air gun and a Cambridge water-jet. Items previously tested with the facility include protective housings for missile systems and helicopter rotor blades.

NASA will use the equipment to evaluate impact effects on new

See *Facility* on page 3

Terek

Terek: Technical conscience essential

By Rick Smith

The door to NASA engineer Jody Terek's office is never closed.

Terek is an engineering liaison at the Marshall Center. She is the Center Business Manager for the Independent Technical Authority, an organization of technical experts under NASA's Office of the Chief Engineer in Washington. Their mission: to partner with project teams across NASA to ensure safe, reliable operations for every flight program.

Right now, as NASA prepares the Discovery orbiter for STS-114: Space Shuttle Return to Flight in July, Terek and the Independent Technical Authority are in high gear. It's her goal to nurture "technical conscience" -- an unwavering dedication to safety -- across Marshall and NASA.

"Technical conscience is the personal responsibility we feel to ensure that safety is never compromised," Terek says. "NASA is working toward a universal commitment to that ideal -- to question any inconsistency or unresolved issue, no matter how slight."

NASA is well on its way toward meeting that goal, she says. The Agency has undergone a dramatic culture shift in recent years, implementing the findings of the Columbia Accident Investigation Board -- which recommended, among other things, creation of the Independent Technical Authority. NASA also is unifying its spaceflight and science missions under the umbrella of the Vision for Space Exploration -- the ambitious initiative to return humans to the Moon and explore the Solar System in coming decades.

For the Shuttle Propulsion Office at Marshall, the challenge is to get America's flagship flying again. In addition to the existing chains of authority, the Shuttle Program Office and the Safety and Mission Assurance Office, the Independent Technical Authority

See *Terek* on page 4

Independent Technical Authority depends on everyone

By Jody Terek

NASA's new independent Technical Authority (iTA) -– created in response to recommendations by the Columbia Accident Investigation Board -- ensures sound technical decisions surrounding safe and reliable operations. Safe and reliable operations encompass anything that affects human safety in regards to our astronauts, our workforce, the public and our environment.

Technical conscience means people exercise a deep personal sense of responsibility for safety and reliability. The success of the iTA depends on the "technical conscience" of every individual working for NASA -- whether civil servant or contractor.

"People are NASA's technical conscience," says Dr. Paul Munafo, Marshall Center's associate director for safety and engineering. NASA Chief Engineer Rex Geveden selected Munafo to be the iTA system technical warrant holder for Space Shuttle propulsion systems. When warrant holders are performing iTA duties, these experts are "independent" of program or project funding, schedule concerns and center organizations.

"Safe and reliable operations aren't just the responsibility of warrant holders," says Munafo. "Every NASA employee and contractor must use his or her own technical conscience both as a guide in making sound technical decisions and to help raise concerns if someone believes safety may be compromised."

Joanne (Jody) Terek, Marshall's iTA manager, explains that technical conscience means doing what most people at the Marshall Center already do every day, such as asking important questions: Does this data make sense? Did this test achieve what we needed to achieve or do we need more tests or different types of tests? Is this hardware operating correctly or does something need to be changed?

"It just means that as you do your job, you apply technical rigor to ensure safe and reliable operations, especially when the decisions you make can affect human safety," said Terek.

The ultimate goal is to ensure that sound engineering decisions are made and all dissenting or alternate opinions are evaluated. Since the iTA is not a separate organization but people who take part in all program and project activities, it provides an alternate route to raise concerns to higher levels and is an avenue that everyone can use to improve communications. "If we are going to transform the way we make decisions at NASA, then everyone must be part of iTA," says Munafo "That's what technical conscience is all about."

To learn more about the iTA, go to http://pbma.hq.nasa.gov/ita/index.html.

Editor's note: This is the second in a series of Marshall articles that will explain iTA and what it means to you. For questions, please email Joanne.M.Terek@nasa.gov

CAIB Report recommends an independent authority

The independent investigation into the Columbia Space Shuttle accident by the Columbia Accident Investigation Board revealed organizational and operational areas that NASA should improve to ensure safe and reliable Space Shuttle operations. One recommendation included establishing clear, clean lines of technical authority, responsibility, and accountability. In the CAIB Report, Volume 1, Chapter 7.3, the report stated:

"The practices noted here suggest that responsibility and authority for decisions involving technical requirements and safety should rest with an independent Technical Authority. Organizations that successfully operate high-risk technologies have a major characteristic in common: they place a premium on safety and reliability by structuring their Programs so that technical and safety engineering organizations own the process of determining, maintaining, and waiving technical requirements with a voice that is equal to yet independent of Program Managers, who are governed by cost, schedule and mission-accomplishment goals. The Naval Reactors Program, SUBSAFE Program, and the Aerospace Corporation are examples of organizations that have invested in redundant technical authorities and processes to become highly reliable."

The CAIB Report made recommendations for changes, including the establishment of an independent Technical Authority in engineering. Recommendation 7.5.1 states:

"Establish an independent Technical Engineering Authority that is responsible for technical requirements and all waivers to them, and [that] will build a disciplined, systematic approach to identifying, analyzing, and controlling hazards throughout the life cycle of the Shuttle System. The independent Technical Authority does the following:

- Develops and maintains technical standards for all Space Shuttle Program Projects and elements
- Is the sole waiver-granting authority for all technical standards
- Conducts trend and risk analysis at the sub-system, system, and enterprise and mission directorate levels
- Owns the failure mode, effects analysis and hazard reporting systems
- Conducts integrated hazard analysis
- Decides what is and is not an anomalous event
- Independently verifies launch readiness
- Approves the provision of the recertification program called for in Recommendation R9.1-1."

"The Technical Engineering Authority should be funded directly from NASA Headquarters, and should have no connection to or responsibility for schedule or program cost."

Facility

Continued from page 1

Photo by Emmett Given/ Marshall Center

Representatives of the Marshall Center and the Department of Defense gather around the light gas gun, part of the existing High Impact Facility, during May 12 ceremonies. The kick-off marked the addition of test capabilities for development of future launch vehicles and the collaboration between NASA and several agencies to bring new equipment to Marshall.
From left, front row: Ralph Carruth, manager Marshall Materials and Processes Lab; George Snyder, Army Aviation and Missile Research Development & Engineering Command; Michael Schexnayder, Army Space and Missile Defense Command/Army Forces Strategic Command; Marshall Center Director David King; Craig Seabrook, Marshall development director; and Curtis Martin, Naval Surface Warfare Center.
Middle row: Dr. William Adler, University of California; Dr. Doug Deason and Dr. Gerald Russell, both of the Army Aviation command; Col. Frank Arena, senior Air Force representative to NASA.
Back row: Jeff Brewer, Army Aviation command; Whitney Hubbs, Mary Hovater, and Mary Nehls, all of the impact testing facility; Bruce Moylan, Army Aviation command; Andy Finchum and Steve Evans of the impact testing facility.

and existing types of thermal protection systems -- the coatings and coverings that protect spacecraft during braking and re-entry into a planet's atmosphere. Scientists and engineers also will use the facility to develop and test materials for future launch vehicles, advanced space power systems and habitats to be built on the Moon and Mars.

The work will support The Vision for Space Exploration that calls for Space Shuttles to return to safe flight, completion of the International Space Station and human and robotic exploration of the Solar System.

"It's good to be looking toward the future today," said Craig Seabrook, Marshall's Business Development director. "This collaboration is a great example of Marshall and the community doing just that."

Physicists and engineers in the Environmental Effects Branch of Marshall's Engineering Directorate are working with Army and Navy centers and commands to complete the transfer and installation of the equipment. Those organizations include the U.S. Army Aviation and Missile Research Development and Engineering Center and the Space and Missile Defense Command -- both at Redstone Arsenal; the Naval Surface Warfare Center at the Washington Naval Yard in Washington, D.C.; and the Naval Air Warfare Center in China Lake, Calif.

The facility was developed in the 1970s and operated by private companies -- most recently AT&T Government Solutions -- in Santa Barbara, Calif. In 2004, the company decided to discontinue its operation. The collaborative effort by the Marshall Center and Department of Defense agencies resulted in the firm donating the equipment to NASA.

Marshall's active impact testing facility and NASA's relationship with the U.S. Army and Department of Defense made Redstone Arsenal the logical choice for relocating the facility in Huntsville.

"We say thanks to Marshall for agreeing to house and operate this facility," said Michael W. Schexnayder, deputy to the commander for Research, Development and Acquisition for the U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command.

"We appreciate the work that went into the solution to get this important facility relocated here."

The writer, an ASRI employee, supports the Public Affairs Office.

Marshall Center's Honor Awards Day ceremonies set for Wednesday

The Marshall Center will hold its annual Honor Awards Ceremonies in the Morris Auditorium Wednesday. There will be two ceremonies, the first at 10 a.m. for the Agency, Presidential Rank, One NASA Peer Center Best, and external awards, and at 2 p.m. the Center awards will be given along with Research & Technology, Technology Transfer, Invention of the Year, Software of the Year, and Patent Awards. James L. Jennings, NASA associate deputy administrator for Institutions and Management, will speak and present the awards to the recipients with Marshall Center Director David King. Both ceremonies will feature live entertainment and a reception.

STS-114: Space Shuttle Return To Flight

Shuttle to roll back

Technicians are preparing to roll Space Shuttle Discovery from the launch pad to the Vehicle Assembly Building, now scheduled for early Thursday. Once there, orbiter Discovery will be demated, or removed, from its External Tank and lowered into the transfer aisle. On or about June 7, Discovery will be lifted and attached to its new External Tank and Solid Rocket Boosters. Discovery is expected to be rolled back out to the pad in mid-June.

Engineers are also investigating part of Discovery's main landing gear door, after a small crack was found last week in a retract link assembly on the right-hand main landing gear on orbiter Atlantis in Orbiter Processing Facility bay 1. The Atlantis assembly was removed and will be replaced with a spare. Engineers have looked at the closeout photos of the link assembly on Discovery. The initial review indicates the link assembly does not appear to have any cracks. To ensure there are no cracks in the assemblies, technicians will enter Discovery's payload bay and perform borescope inspections of the area, an inspection that can only be accomplished at the pad. This additional work does not impact the launch planning window of July 13-31.

Following the inspections, Discovery will undergo hot-fire tests of its Auxiliary Power Units, currently scheduled for Wednesday.

Gostowski

Gostowski gets fellowship

Dr. Rudy Gostowski has been selected as one of six participants for Cohort 9 of the NASA Administrator's Fellowship Program.

Gostowski, of the Propulsion Research Lab, will be assigned to Fisk University in Nashville where he will develop new curriculum for the chemistry department, work to increase student and faculty participation in NASA programs and conduct research.

Gostowski previously worked as an associate professor of chemistry at Austin Peay State University, Clarksville, Tenn., and has been at the Marshall Center for six years. While at Marshall, he conducted work in propulsion catalyst development and materials compatibility with propellants while providing support for the Reusable Solid Rocket Motor Project.

"I am humbly grateful for this great opportunity and look forward to the challenges it represents," said Gostowski.

The NASA Administrator's Fellowship Program is supported by the Equal Opportunity Office. For more information, visit http://www.uncfsp.org/nasa/nafp/ or call the EO office at 544-3740.

Terek

Continued from page 1

provides final technical authorization for flight readiness. For Terek and the Authority's "warrant holders" -- experts in NASA systems and technical fields across the Agency -- the goal is to partner with team members to clear each piece of hardware, each electrical component, each nut, bolt and flange, for safe and reliable Shuttle integration and flight.

During the past two years, Terek has monitored key safety upgrades for Shuttle Propulsion elements, including the massive External Tank that delivers the primary fuel load for launch and the Space Shuttle Main Engines and Solid Rocket Boosters that thrust the Shuttle to orbit. It's her job to keep in step with colleagues "on the floor," as she puts it, as well as those in management positions, to foster open discussion among all parties and to translate potential miscommunication into clarity -- and solutions.

That fills Terek with a sense of pride. "I'm really excited about where we're headed," she says. "We're putting engineering front and center in our flight programs, where it belongs."

Terek's enthusiasm for her chosen profession would have been unexpected from the young girl growing up in Titusville, Fla., Kennedy Space Center's back yard. Space "events" sometimes drew her out -- she remembers standing outside her family's home in 1981, watching Shuttle Columbia, on its STS-1 mission, rocket into the sky for the very first time -- but she didn't catch the space bug as a kid. She had her heart set on a career in surgical medicine. She enjoyed studying anatomy, preferring the physiological to the philosophical.

But her mathematical leanings eventually pushed her more toward chemistry than biology. She earned a bachelor's degree in chemistry in 1987 from Auburn University. In 1989, she joined NASA at the Marshall Center, working on payloads and projects flying aboard the Space Shuttle and other spaceflight missions. She was appointed in 1997 to manage project engineering teams tasked with development and delivery of lightweight fuel tanks and International Space Station payloads, or experiments. Terek also has led chemical testing to study the impact of the space environment on everything from metals used in spacecraft development to fabrics worn by flight crews.

It's not medicine, but in a way, Terek says, her career at NASA has been a unique form of surgery. The work typically calls for careful dissection of each flight project or piece of hardware -- not just to determine the best, safest way to deliver it to space and bring it home again, but also to better NASA's understanding of how to approach future flights and develop future vehicles and missions.

"Which galaxy should we go to first?" Terek says. "Don't ask me -- I'm a tactician, not a strategist. But as soon as the technology's available to make that happen, I want to build the ship that will get us there.

"And we'll build it right," she adds.

The writer, an ASRI employee, supports the Public Affairs Office.

Announcements

Construction begins Tuesday at Rideout Road's Gate 9

Construction will begin Tuesday at Rideout Road's Gate 9. A revised traffic flow pattern will be established over the Memorial Day weekend to allow the construction of a new guardhouse. During construction, four inbound and three outbound lanes will be open during workweek hours. Marshall team members are asked to use caution when driving in that area.

Daily video feed continues for Return to Flight efforts

NASA TV is running a special daily video feed "STS-114 Return to Flight Gallery," for the Space Shuttle Return to Flight mission. Schedule permitting, it airs daily from noon to 2 p.m. CDT. The Return to Flight Gallery will include a rotation of video items, including full-length interviews with each of the Space Shuttle Discovery crew members, replays of mission coverage, news briefings, b-roll and soundbites. The mission is the first of two test flights to verify new inspection and repair techniques, and to deliver supplies to the International Space Station.

Recreation Center now issuing pool access badges

To obtain pool access badges for a spouse or dependants, please contact the Redstone Outdoor Recreation Center. The Marshall Protective Services Office will no longer issue those badges.

Marshall Association accepting scholarship applications

The Marshall Association is accepting scholarship applications from dependants of Marshall civil servants or retirees. Applicants must be entering college this fall. Two scholarships will be awarded -- one to a student pursuing a degree in a technical field and one seeking a non-technical degree. Applications must be received by June 20. See "Inside Marshall" for application and details.

MARS tournament set for June 4

The MARS Tennis Club will hold an open mixed doubles tournament June 4 beginning with a warm-up at 8 a.m. The tournament begins at 8:30 a.m. In the open mixed format, a club member may invite a non-club member to play in the tournament for a fee of $3. Please contact Bill Boglio, 325-3245, bill_boglio@msn.com to sign up.

Annual employee walk is June 15

Marshall Center team members are invited to join Center Deputy Director Charles Chitwood on June 15 at 9 a.m. for the annual employee walk. The walk begins in front of Bldg. 4315. The organization with the most participants and the organization with the highest percentage of employees participating will each win a trophy shoe.

Mandatory training for lengthy overseas traveling set

The U.S. Department of State has mandated that all travelers on government business who are TDY outside the United States for more than a cumulative total of 30 days in a calendar year must complete the "Serving Abroad for Families and Employees (SAFE)" training course. This 16-hour course will be held at 8:30 a.m. June 15-16 in the Training Facility in Bldg. 4627. It is open to both Marshall Center contract and civil service travelers. The next session is scheduled for October. This class cannot be scheduled on an individual basis; therefore, attendance is recommended for any employee who has a possibility of approaching 30 days of official overseas travel this year. Team members will be certified for five years following completion of the training. For more information or to register, call Aimee Fluitt at 544-8517 or aimee.r.fluitt@msfc.nasa.gov.

Job Announcement

MS05C0052, Supervisor, AST, Software Systems, Engineering Directorate, Instrument & Payload Systems Department, Data Systems & Software Division, Flight Software Branch. Closes May 31.
Contact: Patricia Caraway, 544-7755

Classified Ads

Miscellaneous

Full-size bed, solid maple headboard, footboard, rails, slats, $100. 772-7262

Kneeboard and Wakeboard for children into water sports, $40 each. 468-0854

Kincaid maple bed, extra long, full size w/mattress & box springs, $150. 536-8414

Two side-by-side crypts, Valhalla Memory Gardens, private, reduced cost. 1-860-558-3063

Wedding dress & veil, size 8; baby monitor, $25; computer desk, $125. 776-9165

Multi-colored sleeper sofa & loveseat, $100; navy/burgundy queen sleeper sofa, $75. 859-5624

Metal rabbit cage w/plastic sliding bottom for easy cleaning, plastic tray for food, $25. 256-883-6496

Wooden Jungle Gym Fort, $50. 837-0996

Zenith TV, 60", needs work, $150; will deliver to Huntsville or Madison. 797-5131

Futon, all wood frame, 6" navy mattress, $125. 256-232-8311

Two flow-master mufflers, $100. 256-572-1197

Boy's Abercrombie Khaki cargo shorts, size 8, $20. 533-5942

Terrarium w/3 adhesive heaters, 18"Dx36"Wx13"H, $30; Oak student desk w/3 drawers and shelf, $50. 882-0461

Chain link fence, 260', two 10' gates, you take down, $400. 233-1487

Sony Wega Trintron TV, 36", Model KV36HS500, w/stand and warranty, $1,200. 746-9068

Delta table saw, contractor grade with roll around base, $300. 340-9450

Outdoor furniture, cast iron, table, 4 chairs, 2 rockers, chaise lounge, $250. 539-3166

Sofa & loveseat, $200; overstuffed loveseat, $300; punch bowl set, $25; table, $40. 534-0939

Troy-Bilt Tuffy Roto-tiller, 3HP, $400; single bike rack for Honda, $10. 881-7953

Ashley Queen Anne Cherry tables w/matching inlay design, cocktail & two end tables, $250. 880-3737

Easton Stealth 28/19 big barrel baseball bat, still in plastic wrap, $120. 656-0461

Four Firestone Affinity LH30 tires, size 205/55-16, $175. 256-498-6568

Rattan wicker pedestal square rounded-corner glass top table w/4 chairs, blush, make offer. 772-7282

Hayward sand filter for in-ground or above-ground pool, 18", used one season, $200. 508-4503

Image 10.8QL space saver treadmill, 2.5hp continuous duty motor, heart monitor, power incline. 656-9201

Dvd/tv console for van, $200; Monessen vented LP gas logs, $125. 881-7000

Piano & bench, Kimball console style, fruitwood finish, tuned 8/2004, $800. 880-6146

Four piece luggage set, Protocol, floral pattern, $60; two twin cotton futon mattresses, $75 each. 520-3874

Pennsylvania House video cabinet, Cherry, up to 30" tv, vcr/dvd, $750. 931-427-2059

Complete darkroom, B&W & color, Chromega DA enlarger, 5-lenses, 3 negative carriers, lights, trays, etc. 651-1085

Kitchen hutch/buffet, Pine, $150; tv/vcr combo, 13", $50; formal brass chandelier, $40. 829-1296

Vehicles

1987 Dodge D100 truck, one-owner, 139k miles, maintenance records available, $2,500. 895-9520/Philip

1997 Ford Explorer XLT, 73k miles, pw/pdl, auto, cd, new tires. 653-5731

1998 BMW 740IL, hunter green, tan leather interior, 103k miles, new tires, $16,000. 682-0888

2000 Volvo V70, 2.4 1, auto, all extras, one-owner, 72k miles, $12,900. 351-1754

1999 BMW 328iC, white, gray leather, power top, sport, h-k, 5-speed, 85k miles, $18,995. 837-1035

1989 Jaquar Vanden-Plas, light green w/tan leather interior, $6,000. 479-2651

2003 Nissan Pathfinder, v6/automatic, 2wd, tow package, 4-door, 24k miles, cd, silver/charcoal leather, $23,000. 880-3337

2005 Honda Rancher, yellow, 4x4, manual transmission, low hours, $4,000. 256-497-4116

1978 Lincoln Mark V Continental, 106k miles, 460/v8, $1,995. 851-0893

2005 Nissan Frontier extended cab, 7k miles, under warranty. 837-1774

2002 Kawasaki Vulcan Drifter 800, 12k miles. 881-3379

1986 Pontiac Fiero SE custom, v6 engine, 4-speed, leather, 98k miles, $2,900. 651-5847

2003 GMC Sonoma, 23k miles, under warranty, 22 mpg, $8,500. 679-4198

1994 Cavalier RS, white, 2-door, pw/pdl/cd, ABS, runs but needs engine work, $500. 859-9204

2004 Chevy Silverado LS< 4.8L, sport side, factory tint, 16k miles, $18,995. 508-5416

2003 Toyota Celica GT, 38.9 miles, 5-speed, black, cd/cass, all-power, sunroof, cruise, $14,900. 694-0034

1990 Nissan Kingcab truck, 4-cyl., 5-speed, 2wd, cd player, chrome wheels, good tires, $2,200. 883-5070

1997 BMW 740iL, 139k miles, dark green, tan leather, loaded, $10,500. 536-8692

SeaRay Sorrento cabin cruiser, 25', V-berth, mid-berth, many extras, $13,500. 468-0854

1999 Mazda Miata MX5, red, 65k miles, garage kept, intake/headers, dual exhaust, 17" rims, $10,000. 325-2070

Wanted

Old motorcycles from the '50-'70s, running or not, or parts. 256-509-3559

To buy real estate courses and training materials. 527-2984

Free

Kittens. 828-3181

Clean fill dirt. 256-461-8617

Kitten, 7-months, orange/white stripe, short haired, all shots; mother cat, blue/gray, spayed, shots. 775-6584

Two small dogs to good homes, male Terriers. 828-5573

Found

Ladies watch in Bldg. 4202 parking lot. Call 544-7405 to identify/claim

Key ring in Bldg. 4711, multiple keys and fob. Call 544-2513 to identify/claim

NEW CLASSIFIED AD DEADLINES

Effective immediately, classified ads must be submitted by 5 p.m. Thursday for the next week's Marshall Star.

MARSHALL STAR

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The Marshall Star is published every Thursday by the Internal Relations and Communications Department at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Contributions should be submitted no later than 5 p.m. Friday to the Marshall Internal Relations and Communications Department (CS10), Bldg. 4200, room 101. Submissions should be written legibly and include the originator's name. Send electronic mail submissions to: intercom@msfc.nasa.gov The Marshall Star does not publish commercial advertising of any kind.

Manager of Internal Communications — Steven Durham
Editor — Patricia Dedrick Lloyd

U.S. Government Printing Office 2005-733-048-60155

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Permit No. G-27